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EXAMINER	
WANG, JIN CHENG	

ART UNIT	PAPER NUMBER
2628	

NOTIFICATION DATE	DELIVERY MODE
12/13/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/911,474	IDA ET AL.	
	Examiner	Art Unit	
	Jin-Cheng Wang	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/13/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 14-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 14-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's submission filed on 11/13/2007 has been entered. Claims 1-2, 4-5, 14-15 and 20 have been amended. Claims 12-13 have been canceled. Claims 1-11 and 14-20 are pending in the present application.

Response to Arguments

Applicant's arguments, filed November 13, 2007, with respect to claim 1 and similar claims have been considered but are not found persuasive in view of the ground of rejection set forth in the present Office Action.

In Page 9 of Remarks, applicant argues that "according to the claimed invention, for example, a frame or frames at an interval during which object extraction has succeeded are set at the overwrite disable mode, and a frame or frames at an interval during which the other object extraction has not succeeded is set at the overwrite enable mode, as described in page 11, second paragraph, of the specification."

At column 5, lines 10-25 Brown teaches that the segmentation mask records the locations to extract the object region such as the Shark head or the Shark tail in which relevant motions have occurred with some of the frames of the video sequence and these locations correspond to the locations in the frame(s) where relevant motion was detected. The segmentation mask stores the locations in a well known fashion similar to the use of an alpha channel in digital video hardware. At column 6, lines 50-67 Brown teaches that the attribute difference exceeds the sensitivity, a relevant motion is detected and the attribute difference is compared to the

likelihood value computed from the motion history record to determine if a more statistically likely relevant motion has occurred----- If there is a relevant motion detected for a particular frame(s) based on the alpha data attribute difference, overwrite disable mode is inherently set to the frames because important information within the frame(s) such as the detected object region having the moving pixels cannot be overwritten by any new data or treated as the background pixel data. There is a relevant motion with the pixels of the frame(s) and the pixels of the frame(s) related to the object region of the relevant motion are not the same as the background pixels and should not be overwritten by the background pixel values. If there is no relevant motion detected for a particular frame(s) based on the alpha data attribute difference, the overwrite enable mode is inherently set to the frame(s) because no important information or no moving pixels are detected. No relevant motion exists with the pixels of frame(s) and the pixels of the frame(s) are the same as the background pixel(s) and thus the pixel(s) of the frame(s) can be "overwritten" or treated as the background pixels. The motion locus trajectory is produced in Figs. 6a-6b based on the detected motion with the pixels of the frame(s) by adding the detected motion to the locus trajectory in order to produce the Strobe Photo.

Applicant argues that Brown does not teach the claimed step of "setting an overwrite enable mode and an overwrite disable mode to the frames in units of one frame according to performance of the alpha data". The examiner respectfully disagrees with this argument. At column 4, lines 60-67 and column 6, lines 63-67 Brown discloses setting the starting frame, the end frame, the frame sampling time interval or step size for enabling the sampled frames and disabling the un-sampled frames and/or filtering the frames allowing the detection of relevant motions to be performed on the moving object within the frame. Even if the claim language

"setting" is interpreted from applicant's specification at page 11, the set of the sampled frames having the detected motion of the object initially correspond to the frames having the overwrite disable mode because the moving object within the sampled frames is extracted to record the motion locus of the object and thereby the frame or the object region in the frame cannot be overwritten by new data. The set of the sampled frames having no detected motion correspond to the frames having the overwrite enable mode because the relevant motion cannot be extracted from the frame(s) and thereby the frame or the object region in the frame can be overwritten by new data. Other frames not selected in the sampling correspond to the frames having the overwrite enable mode because the frames are not used to extract the object for the motion locus of the object. The segmentation mask (alpha data) has been employed to extract the object such as the shark head or the shark tail in order to detect the motion locus of the shark head or the shark tail (See Figs. 6a-6b).

Applicant argues in essence with respect to the claim 1 and similar claims that Pan does not disclose the claim limitation of "setting an overwrite enable mode and an overwrite disable mode to the frames in units of one frame according to performance of the alpha data". The examiner respectfully disagrees with this argument. Pan discloses at column 8, lines 1-10 that the frequency of a pixel is assigned to a moving object in a number of motion masks such as ten or more. If the frequency is higher than a predetermined threshold, then this pixel is determined as a moving pixel. Otherwise, it is designated as background and is removed from the final motion mask and thereby Pan discloses overwrite enable mode because the pixel data is overwritten by the background data and is removed from the final motion mask. The moving pixels are not overwritten by the background data and not removed from the final motion mask and thereby

Pan discloses overwrite disable mode because the pixel data is not overwritten by the background data and is not removed from the final motion mask. At column 7, lines 52-60, Pan discloses that the frame interval is adapted according to the estimated motion where the motion of moving objects is minimal the interval of two frames is adapted and for a fast motion field, the interval can be set small and for slow motion the interval is set large. **The frames selected for motion detection processing wherein the frame(s) having relevant motion---moving pixels---detected correspond to the overwrite disable mode and the frames not selected or the frames having no relevant motion detected correspond to the overwrite enable mode**. Pan discloses overwrite enable mode for the frame(s) having no moving object detected because the pixel data is overwritten by the background data and is removed from the final motion mask. The moving pixels for the frame(s) or the object region in the frame(s) are not overwritten by the background data and not removed from the final motion mask and thereby Pan discloses overwrite disable mode for the frame(s) or the object region in the frame(s) because the pixel data is not overwritten by the background data and is not removed from the final motion mask. At column 6, lines 39-52 Pan discloses that the user selects one of these frames for performing color segmentation and thus allows the colors or pixels of the selected frame to be incorporated in the color segmentation mask; column 9-10, if the percent of the region that is assigned to a moving object exceeds a predetermined threshold, then the whole region is deemed to be part of the moving object and thus the region is incorporated in the final mask------and therefore, the frame(s) having the motion detected should not be overwritten and frames has no relevant motion being detected are not important and thus can be overwritten as they are irrelevant to the motion detection to provide motion history record.

Specification

The disclosure is objected to because of the following informalities: For example, at Line 15 of Page 2, "Adobi Corporation" should be "Adobe Corporation" and "premier" should be "Premiere". At lines 25-26 of Page 9, "the thumb nails" should be "the thumbnails". At Page 14, line 19, "disenable" should be "disable". Appropriate correction is required.

A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

Claim Objections

Claim 2 is objected to because of the following informalities: "A method according to" should be "The method according to". Appropriate correction is required.

Claim 3 is objected to because of the following informalities: "A method according to" should be "The method according to". Appropriate correction is required.

Claim 4 is objected to because of the following informalities: "A method according to" should be "The method according to". Appropriate correction is required.

Claim 5 is objected to because of the following informalities: "A method according to" should be "The method according to". Appropriate correction is required.

Claim 6 is objected to because of the following informalities: "A method according to" should be "The method according to". Appropriate correction is required.

Claim 7 objected to because of the following informalities: "A method according to" should be "The method according to". Appropriate correction is required.

Claim 8 is objected to because of the following informalities: "A method according to" should be "The method according to". Appropriate correction is required.

Claim 9 is objected to because of the following informalities: "A method according to" should be "The method according to". Appropriate correction is required.

Claim 10 is objected to because of the following informalities: "A method according to" should be "The method according to". Appropriate correction is required.

Claim 11 is objected to because of the following informalities: "A method according to" should be "The method according to". Appropriate correction is required.

Claim 15 is objected to because of the following informalities: "An apparatus according to" should be "The apparatus according to". Appropriate correction is required.

Claim 16 is objected to because of the following informalities: "An apparatus according to" should be "The apparatus according to". Appropriate correction is required.

Claim 17 is objected to because of the following informalities: "An apparatus according to" should be "The apparatus according to". Appropriate correction is required.

Claim 18 is objected to because of the following informalities: "An apparatus according to" should be "The apparatus according to". Appropriate correction is required.

Claim 19 is objected to because of the following informalities: "An apparatus according to" should be "The apparatus according to". Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims 1-11 and 14-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim 1 recites "setting an overwrite enable mode and an overwrite disable mode to the frame in units of one frame according to performance of the alpha data." The claim language is ambiguous and confusing to the extent how one can determine or set an overwrite enable mode or an overwrite disable mode to the frame(s). The pixel(s) of the frame has the alpha data. It is not clear how the performance of the alpha data can be used to set overwrite enable mode and/or an overwrite disable mode. Applicant's broadest recitation in the "setting" step does not even correspond to any embodiment of applicant's specification for the specification lacks a clear definition of "the overwrite enable mode", "the overwrite disable mode" and "the alpha data" for the reasons set forth below.

Moreover, it is not clear under what condition one can determine or set an overwrite enable mode and/or an overwrite disable mode, if there is any difference between the overwrite enable mode or the overwrite disable mode to the frame. The applicant's specification discloses in different occasions drastically different scenarios for setting the overwrite enable mode and overwrite disable, rendering the claim limitation indefinite.

In a non-limiting example for the confusing claim languages, according to applicant's specification at Fig. 2, for example, the overwrite enable mode and the overwrite disable mode is set depending upon whether the frames are within or outside an interval. The claim limitation of "setting an overwrite enable mode and an overwrite disable mode to the frames" is ambiguous

and confusing according to applicant's specification. It could mean that the frames are enabled or disabled for processing (See Fig. 2) and this has nothing to do with the performance of the alpha data. According to applicant's claim 1, it is not clear how the overwrite enable mode or the overwrite disable mode of the frame(s) is related to the object extraction. The object region extraction, however, is based on the pixel data. Clarification is required (the examiner suggests that applicant should amend the claim language based on one embodiment of the specification, e.g., page 11 of applicant's specification, to provide a clear definition to the terms recited in the claim 1, for example, to make a clear distinction between the overwrite enable mode and the overwrite disable mode and how the different modes are set to the frames or how the modes are related to the object region extraction. This is because the specification failed to provide a unique standard for setting the overwrite enable mode or the overwrite disable mode).

In Page 9 of Remarks, applicant argues that "a frame or frames at an interval during which object extraction has succeeded are set at the overwrite disable mode, and a frame or frames at an interval during which the other object extraction has not succeeded is set at the overwrite enable mode, as described in page 11, second paragraph, of the specification." While this disclosure itself is confusing because overwrite disable mode is set with respect to object extraction and the overwrite enable mode is set with respect to the other object extraction. The meaning of "the other object extraction" is not clear and thus there is no clear definition for setting the overwrite enable mode and the overwrite disable mode. The claimed "overwrite enable mode" and "overwrite disable mode" are confusing for its own sake and are confusing if one examines the specification in order to grasp the meaning of the claim language. However, the specification failed to provide a clear definition for the overwrite enable mode and overwrite

disable mode. The examiner hereby suggests that applicant should amend the specification to clearly define the overwrite enable mode and the overwrite disable mode. For example, "the other object extraction" set forth in Page 11, second paragraph may be amended to read "the object extraction".

The claim 1 further recites "generating alpha data in units of one frame using the video image, the alpha data representing an object region including the object". At line 23-24 of Page 1 of applicant's specification, a pixel value is referred to as an alpha value wherein alpha value is the alpha data as claimed. However, at line 5 of Page 2 of applicant's specification, a value A---transparency value---is referred to as an alpha value. Thus, applicant's specification has given two different definition as to the alpha value (alpha data) and therefore rendering the claim language "alpha data" indefinite. However, in the normal practice the alpha data is the transparency data in the pixel without taking into account the color RGB data. It is not clear from the claim language whether the claimed "alpha data" means the pixel data. However, "the alpha data representing an object region including the object" is recited. Applicant speculated that the claimed alpha data may well be the pixel data or merely the transparency data (A-data).

Looking at the applicant's specification, it is not clear whether a pixel value or a value A---transparency value--- is an alpha value (the claimed alpha data), rendering the claim 1 indefinite as to the claim limitation of "the alpha data" because it is uncertain from the claim language or from the applicant's specification whether the alpha data refers to the pixel data or the transparency data. Clarification is required (The examiner suggests replacing the alpha data with the pixel data throughout all the claims to be consistent with the normal practice in light of the uncertainty in the applicant's specification).

The claim 1 further recites "detecting the overwrite enable mode and the overwrite disable mode in units of one frame to extract the object". However, the opposite is disclosed in applicant's specification. The object is extracted to detect the overwrite enable mode and the overwrite disable mode in units of one frame. The object is extracted before the frame or frames is determined to be in the overwrite enable mode and/or the overwrite disable mode. See Page 11, second paragraph of the specification.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

The claims 2-11 depend upon the claim 1 and are rejected due to their dependency on the claim 1. The claims 14-20 are subject to the same rationale of rejection set forth in the claims 1-11.

In the interest of compact prosecution, the application is further examined against the prior art, as stated below, upon the assumption that the applicants may overcome the above stated rejections under 35 U.S.C. 112.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6, 9, 11, 14-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. U.S. Patent No. 6,665,342 (hereinafter Brown) in view of Pan et al. U.S. Patent No. 6,785,329 (hereinafter Pan).

Re Claims 1, 14 and 20:

Brown discloses a method for extracting an object from a video image including an object and a background (e.g., Fig. 4 includes an object and the associated background; see also Figs. 6a-6b), comprising:

Performing an object extraction (*Fig. 4 and Fig 6a-6b wherein the object is detected and extracted, e.g., the Shark head or the Shark tail are extracted according to the segmentation mask---alpha data*) by generating alpha data in units of one frame using the video image (*the segmentation mask of Fig. 4 in units of one frame using the video image frames*), the alpha data representing an object region including the object (*the segmentation mask is used to determine and extract an object region representing the Shark head or the Shark tail within an image frame and thus such object extraction is based on the segmentation mask---alpha data as well as the pixel data of the frame having the object region relating to the Shark head or the Shark tail; see Figs. 6a-6b; At column 5, lines 10-25 Brown teaches that the segmentation mask records the locations of the object region including the object such as the fish head or the fish tail in which relevant motions have occurred and these locations correspond to the locations in the frame where relevant motion was detected in which the segmentation mask stores the locations of the object region in a well known fashion similar to the use of an alpha channel in digital video hardware. At column 6, lines 50-67 Brown teaches that the attribute difference exceeds the*

sensitivity, a relevant motion is detected and the attribute difference is compared to the likelihood value computed from the motion history record to determine if a more statistically likely relevant motion has occurred; At column 4, lines 60-67 and column 6, lines 63-67 Brown discloses setting the starting frame, the end frame, the frame sampling time interval or step size for enabling/disabling or filtering the frames allowing the detection of relevant motions to be performed on the moving object within the frame and in column 7-8 the segmentation mask and the motion history record is updated as the video sequence is sampled wherein sampling means enabling/sampling the frame for updating the segmentation mask and frames not sampled means that disabling/not sampling the frame for updating the segmentation mask);

Setting an overwrite enable mode and an overwrite disable mode to the frame in units of one frame according to performance of the alpha data, the overwrite enable mode being for permitting overwriting and the overwrite disable mode for inhibiting overwriting (*at column 5, lines 10-25 Brown teaches that the segmentation mask records the locations to extract the object region such as the Shark head or the Shark tail in which relevant motions have occurred with some of the frames of the video sequence and these locations correspond to the locations in the frame(s) where relevant motion was detected. The segmentation mask stores the locations in a well known fashion similar to the use of an alpha channel in digital video hardware. At column 6, lines 50-67 Brown teaches that the attribute difference exceeds the sensitivity, a relevant motion is detected and the attribute difference is compared to the likelihood value computed from the motion history record to determine if a more statistically likely relevant motion has occurred----- If there is a relevant motion detected for a particular frame(s) based on the alpha data attribute difference, overwrite disable mode is inherently set to the frames because*

important information within the frame(s) such as the detected object region having the moving pixels cannot be overwritten by any new data. There is a relevant motion with the pixels of the frame(s) and the pixels of the frame(s) related to the object region of the relevant motion are not the same as the background pixels and should not be overwritten by the background pixel values. If there is no relevant motion detected for a particular frame(s) based on the alpha data attribute difference, the overwrite enable mode is inherently set to the frame(s) because no important information or no moving pixels are detected. No relevant motion exists with the pixels of frame(s) and the pixels of the frame(s) are the same as the background pixel(s) and thus the pixels of the frame(s) can be "overwritten" by the background pixels.

The motion locus trajectory is produced in Figs. 6a-6b based on the detected motion with the pixels of the frame(s) by adding the detected motion to the locus trajectory in order to produce the Strobe Photo. At column 4, lines 60-67 and column 6, lines 63-67 Brown discloses setting the starting frame, the end frame, the frame sampling time interval or step size for enabling/disabling or filtering the frames allowing the detection of relevant motions to be performed on the moving object within the frame. The set of the sampled frames having the detected motion of the object initially correspond to the frames having the overwrite disable mode because the object within the sampled frames is extracted to record the motion locus of the object and thereby the frame cannot be overwritten. The set of the sampled frames having no detected motion of the object correspond to the frames having the overwrite enable mode because the relevant motion cannot be extracted from the frame(s) and thereby the frame can be "overwritten" as the background pixel data. Other frames not selected in the sampling correspond to the frames having the overwrite enable mode because the frames are not used to

extract the object for the motion locus of the object. The segmentation mask (alpha data) has been employed to extract the object such as the shark head or the shark tail in order to detect the motion locus of the shark head or the shark tail (See Figs. 6a-6b).

In column 7-8 the segmentation mask and the motion history record is updated as the video sequence is sampled wherein sampling means enabling/sampling the frame for updating the segmentation mask and frames not sampled means that disabling/not sampling the frame for updating the segmentation mask); and

Detecting the overwrite enable mode and the overwrite disable mode in units of one frame to extract the object (*At column 5, lines 10-25 Brown teaches that the segmentation mask records the locations in which relevant motions have occurred and these locations correspond to the locations in the frame where relevant motion was detected in which the segmentation mask stores the locations in a well known fashion similar to the use of an alpha channel in digital video hardware. At column 6, lines 50-67 Brown teaches that the attribute difference exceeds the sensitivity, a relevant motion is detected and the attribute difference is compared to the likelihood value computed from the motion history record to determine if a more statistically likely relevant motion has occurred; see Fig. 4 wherein the segmentation mask are in units of one frame; At column 4, lines 60-67 and column 6, lines 63-67 Brown discloses setting the starting frame, the end frame, the frame sampling time interval or step size for enabling/disabling or filtering the frames allowing the detection of relevant motions to be performed on the moving object within the frame. The set of the sampled frames having the detected motion of the object initially correspond to the frames having the overwrite disable mode because the object within the sampled frames is extracted to record the motion locus of the*

object and thereby the frame cannot be overwritten. The set of the sampled frames having no detected motion of the object correspond to the frames having the overwrite enable mode because the relevant motion cannot be extracted from the frame(s) and thereby the frame can be "overwritten" as the background pixel data. Other frames not selected in the sampling correspond to the frames having the overwrite enable mode because the frames are not used to extract the object for the motion locus of the object. The segmentation mask (alpha data) has been employed to extract the object such as the shark head or the shark tail in order to detect the motion locus of the shark head or the shark tail (See Figs. 6a-6b). In column 7-8 the segmentation mask and the motion history record is updated as the video sequence is sampled wherein sampling means enabling/sampling the frame for updating the segmentation mask and frames not sampled means that disabling/not sampling the frame for updating the segmentation mask).

In other words, at column 5, lines 10-25 Brown teaches that the segmentation mask records the locations to extract the object region such as the Shark head or the Shark tail in which relevant motions have occurred with some of the frames of the video sequence and these locations correspond to the locations in the frame(s) where relevant motion was detected. The segmentation mask stores the locations in a well known fashion similar to the use of an alpha channel in digital video hardware. At column 6, lines 50-67 Brown teaches that the attribute difference exceeds the sensitivity, a relevant motion is detected and the attribute difference is compared to the likelihood value computed from the motion history record to determine if a more statistically likely relevant motion has occurred----- If there is a relevant motion detected for a particular frame(s) based on the alpha data attribute difference, overwrite disable mode is

inherently set to the frames because important information within the frame(s) such as the detected object region having the moving pixels cannot be overwritten by any new data or as the background pixel data. There is a relevant motion with the pixels of the frame(s) and the pixels of the frame(s) related to the object region of the relevant motion are not the same as the background pixels and should not be overwritten by the background pixel values. If there is no relevant motion detected for a particular frame(s) based on the alpha data attribute difference, the overwrite enable mode is inherently set to the frame(s) because no important information or no moving pixels are detected. No relevant motion exists with the pixels of frame(s) and the pixels of the frame(s) are the same as the background pixel(s) and thus the pixels of the frame(s) can be "overwritten" as the background pixels. The motion locus trajectory is produced in Figs. 6a-6b based on the detected motion with the pixels of the frame(s) by adding the detected motion to the locus trajectory in order to produce the Strobe Photo.

At column 4, lines 60-67 and column 6, lines 63-67 Brown discloses setting the starting frame, the end frame, the frame sampling time interval or step size for enabling the sampled frames and disabling the un-sampled frames and/or filtering the frames allowing the detection of relevant motions to be performed on the moving object within the frame. Even if the claim language "setting" is interpreted from applicant's specification at page 11, the set of the sampled frames having the detected motion of the object initially correspond to the frames having the overwrite disable mode because the object within the sampled frames is extracted to record the motion locus of the object and thereby the frame or the object region in the frame cannot be overwritten by new data. The set of the sampled frames having no detected motion of the object correspond to the frames having the overwrite enable mode because the relevant motion cannot

be extracted from the frame(s) and thereby the frame or the object region in the frame can be overwritten by new data. Other frames not selected in the sampling correspond to the frames having the overwrite enable mode because the frames are not used to extract the object for the motion locus of the object. The segmentation mask (alpha data) has been employed to extract the object such as the shark head or the shark tail in order to detect the motion locus of the shark head or the shark tail (See Figs. 6a-6b).

Pan discloses a method for extracting an object from a video image including an object and a background (Figs. 2-4), comprising:

Performing an object extraction (column 5, lines 40-45) by generating alpha data in units of one frame using the video image (*e.g., column 6, lines 1-15, column 8, lines 1-20 and column 9, lines 1-30, column 10, lines 20-25 and column 11, lines 1-12 wherein the alpha data includes a color segmentation mask, motion segmentation mask, a frame difference mask, a texture mask and a depth mask*), the alpha data representing an object region including the object (*e.g., column 6, lines 1-15, column 8, lines 1-20 and column 9, lines 1-30, column 10, lines 20-25 and column 11, lines 1-12 wherein the alpha data includes a color segmentation mask, motion segmentation mask, a frame difference mask, a texture mask and a depth mask and all of the masks to be used are combined to generate the final mask that identifies the objects extracted from the source video frames*);

Setting an overwrite enable mode (*e.g., column 8, lines 1-10, the frequency of a pixel is assigned to a moving object in a number of motion masks such as ten or more. If the frequency is higher than a predetermined threshold, then this pixel is determined as a moving pixel.*

Otherwise, it is designated as background and is removed from the final motion mask; At column 7, lines 52-60, Pan discloses that the frame interval is adapted according to the estimated motion where the motion of moving objects is minimal the interval of two frames is adapted and for a fast motion field, the interval can be set small and for slow motion the interval is set large. ***The frames selected for motion detection processing wherein the frame(s) having relevant motion detected correspond to the overwrite disable mode and the frames not selected or the frames having no relevant motion detected correspond to the overwrite enable mode.*** *At column 6, lines 39-52 Pan discloses that the user selects one of these frames for performing color segmentation and thus allows the colors or pixels of the selected frame to be incorporated in the color segmentation mask; column 9-10, if the percent of the region that is assigned to a moving object exceeds a predetermined threshold, then the whole region is deemed to be part of the moving object and thus the region is incorporated in the final mask------and therefore, the frame(s) having the motion detected should not be overwritten*) and an overwrite disable mode to the frame in units of one frame according to performance of the alpha data (*e.g., column 8, lines 1-10, the frequency of a pixel is assigned to a moving object in a number of motion masks such as ten or more. If the frequency is higher than a predetermined threshold, then this pixel is determined as a moving pixel. Otherwise, it is designated as background and is removed from the final motion mask*), the overwrite enable mode being for permitting overwriting and the overwrite disable mode for inhibiting overwriting (*e.g., column 8, lines 1-10, the frequency of a pixel is assigned to a moving object in a number of motion masks such as ten or more. If the frequency is higher than a predetermined threshold, then this pixel is determined as a moving pixel. Otherwise, it is designated as background and is removed from the final motion mask; At*

column 7, lines 52-60, Pan discloses that the frame interval is adapted according to the estimated motion where the motion of moving objects is minimal the interval of two frames is adapted and for a fast motion field, the interval can be set small and for slow motion the interval is set large. ***The frames selected for motion detection processing wherein the frame(s) having relevant motion detected correspond to the overwrite disable mode and the frames not selected or the frames having no relevant motion detected correspond to the overwrite enable mode***);

and

Detecting the overwrite enable mode and the overwrite disable mode in units of one frame to extract the object (*e.g., column 8, lines 1-10, the frequency of a pixel is assigned to a moving object in a number of motion masks such as ten or more. If the frequency is higher than a predetermined threshold, then this pixel is determined as a moving pixel. Otherwise, it is designated as background and is removed from the final motion mask*).

Pan discloses at column 8, lines 1-10 that the frequency of a pixel is assigned to a moving object in a number of motion masks such as ten or more. If the frequency is higher than a predetermined threshold, then this pixel is determined as a moving pixel. Otherwise, it is designated as background and is removed from the final motion mask and thereby Pan discloses overwrite enable mode because the pixel data is overwritten by the background data and is removed from the final motion mask. The moving pixels are not overwritten by the background data and not removed from the final motion mask and thereby Pan discloses overwrite disable mode because the pixel data is not overwritten by the background data and is not removed from the final motion mask. At column 7, lines 52-60, Pan discloses that the frame interval is adapted according to the estimated motion where the motion of moving objects is minimal the interval of

two frames is adapted and for a fast motion field, the interval can be set small and for slow motion the interval is set large. **The frames selected for motion detection processing wherein the frame(s) having relevant motion---moving pixels---detected correspond to the overwrite disable mode and the frames not selected or the frames having no relevant motion detected correspond to the overwrite enable mode.** Pan discloses overwrite enable mode for the frame(s) having no moving object detected because the pixel data is overwritten by the background data and is removed from the final motion mask. The moving pixels for the frame(s) or the object region in the frame(s) are not overwritten by the background data and not removed from the final motion mask and thereby Pan discloses overwrite disable mode for the frame(s) or the object region in the frame(s) because the pixel data is not overwritten by the background data and is not removed from the final motion mask. At column 6, lines 39-52 Pan discloses that the user selects one of these frames for performing color segmentation and thus allows the colors or pixels of the selected frame to be incorporated in the color segmentation mask; column 9-10, if the percent of the region that is assigned to a moving object exceeds a predetermined threshold, then the whole region is deemed to be part of the moving object and thus the region is incorporated in the final mask------and therefore, the frame(s) having the motion detected should not be overwritten and frames has no relevant motion being detected are not important and thus can be overwritten as they are irrelevant to the motion detection to provide motion history record.

Although Brown does not explicitly teach object extraction, Brown implicitly teaches the object extraction in Figs. 6a-6b wherein the shark object such as the shark head or the shark tail is extracted from a plurality of frames and the strobe photo having the moving shark object is

displayed. Pan explicitly discloses the object extraction using contours etc. It would have been obvious to one of the ordinary skill in the art to have combined the teaching of "extraction" in Pan's object extraction and Brown's method of object extraction because Brown at least teaches or suggests the object extraction of the shark object or a ball object in the strobe photo.

One of the ordinary skill in the art would have been motivated to do so to allow the moving object be extracted from the frames and synthesized so as to display the synthesized images of the moving object allowing the moving trajectory/path/locus of the moving object to be extracted from the plurality of the frames (Brown Figs. 6a-6b).

Claim 2:

Brown further discloses the claim limitation of generating new alpha data for the frame set to the overwrite enable mode, overwriting the new alpha data on the alpha data of the frame set to the overwrite enable mode and inhibiting overwriting to the alpha data set to the overwrite disable mode (*At column 4, lines 60-67 and column 6, lines 63-67 Brown discloses setting the starting frame, the end frame, the frame sampling time interval or step size for enabling/disabling or filtering the frames allowing the detection of relevant motions to be performed on the moving object within the frame. The set of the sampled frames having the detected motion of the object initially correspond to the frames having the overwrite disable mode because the object within the sampled frames is extracted to record the motion locus of the object and thereby the frame cannot be overwritten. The set of the sampled frames having no detected motion of the object correspond to the frames having the overwrite enable mode because the relevant motion cannot be extracted from the frame(s) and thereby the frame can be*

overwritten. Other frames not selected in the sampling correspond to the frames having the overwrite enable mode because the frames are not used to extract the object for the motion locus of the object. The segmentation mask (alpha data) has been employed to extract the object such as the shark head or the shark tail in order to detect the motion locus of the shark head or the shark tail (See Figs. 6a-6b)).

Pan further discloses the claim limitation of generating new alpha data for the frame set to the overwrite enable mode, overwriting the new alpha data on the alpha data of the frame set to the overwrite enable mode and inhibiting overwriting to the alpha data set to the overwrite disable mode (*e.g., column 8, lines 1-10, the frequency of a pixel is assigned to a moving object in a number of motion masks such as ten or more. If the frequency is higher than a predetermined threshold, then this pixel is determined as a moving pixel. Otherwise, it is designated as background and is removed from the final motion mask; At column 7, lines 52-60, Pan discloses that the frame interval is adapted according to the estimated motion where the motion of moving objects is minimal the interval of two frames is adapted and for a fast motion field, the interval can be set small and for slow motion the interval is set large. The frames selected for motion detection processing has the overwrite enable mode and the frames not selected has the overwrite disable mode. At column 6, lines 39-52 Pan discloses that the user selects one of these frames for performing color segmentation and thus allows the colors or pixels of the selected frame to be incorporated in the color segmentation mask; column 9-10, if the percent of the region that is assigned to a moving object exceeds a predetermined threshold, then the whole region is deemed to be part of the moving object and thus the region is incorporated in the final mask*).

Claim 3:

Brown further discloses the claim limitation of displaying a video image display lane which displays a plurality of frames of the video image (*Figs. 2 and 4 wherein the video frames are arranged in a lane*) and setting selectively the overwrite enable mode and the overwrite disable mode to the frames (*At column 4, lines 60-67 and column 6, lines 63-67 Brown discloses setting the starting frame, the end frame, the frame sampling time interval or step size for enabling/disabling or filtering the frames allowing the detection of relevant motions to be performed on the moving object within the frame and in column 7-8 the segmentation mask and the motion history record is updated as the video sequence is sampled wherein sampling means enabling/sampling the frame for updating the segmentation mask and frames not sampled means that disabling/not sampling the frame for updating the segmentation mask*).

Pan further discloses the claim limitation of displaying a video image display lane which displays a plurality of frames of the video image and setting selectively the overwrite enable mode and the overwrite disable mode to the frames (*At column 7, lines 52-60, Pan discloses that the frame interval is adapted according to the estimated motion where the motion of moving objects is minimal the interval of two frames is adapted and for a fast motion field, the interval can be set small and for slow motion the interval is set large. The frames selected for motion detection processing has the overwrite enable mode and the frames not selected has the overwrite disable mode*).

Claim 4:

Brown further teaches the claim limitation of setting initially the overwrite enable mode to all the frames (*At column 4, lines 60-67 and column 6, lines 63-67 Brown discloses setting the*

starting frame, the end frame, the frame sampling time interval or step size for enabling/disabling or filtering the frames allowing the detection of relevant motions to be performed on the moving object within the frame and in column 7-8 the segmentation mask and the motion history record is updated as the video sequence is sampled wherein sampling means enabling/sampling the frame for updating the segmentation mask and frames not sampled means that disabling/not sampling the frame for updating the segmentation mask), and then changing selectively the overwrite enable modes on the frames to the overwrite disable in accordance with the result of the determining (*At column 5, lines 10-25 Brown teaches that the segmentation mask records the locations in which relevant motions have occurred and these locations correspond to the locations in the frame where relevant motion was detected in which the segmentation mask stores the locations in a well known fashion similar to the use of an alpha channel in digital video hardware. At column 6, lines 50-67 Brown teaches that the attribute difference exceeds the sensitivity, a relevant motion is detected and the attribute difference is compared to the likelihood value computed from the motion history record to determine if a more statistically likely relevant motion has occurred. Thus the overwrite enable modes on the frames are further changed as a result of determining a relevant motion existing within each of the frames by detecting the relevant motion).*

Claim 5:

Brown further discloses the claim limitation of terminating processing for extracting an object when the overwrite disable mode is determined (*At column 4, lines 60-67 and column 6, lines 63-67 Brown discloses setting the starting frame, the end frame, the frame sampling time interval or step size for enabling/disabling or filtering the frames allowing the detection of*

relevant motions to be performed on the moving object within the frame and in column 7-8 the segmentation mask and the motion history record is updated as the video sequence is sampled wherein sampling means enabling/sampling the frame for updating the segmentation mask and frames not sampled means that disabling/not sampling the frame for updating the segmentation mask and when a frame is not sampled, the processing for extracting a moving object is not performed).

Claim 6:

Brown further discloses the claim limitation of displaying a plurality of thumbnails obtained by reducing the frames (See Figs. 2 and 4 wherein a plurality of thumbnails are shown).

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. U.S. Patent No. 6,665,342 (hereinafter Brown) in view of Pan et al. U.S. Patent No. 6,785,329 (hereinafter Pan) and Clapper et al. U.S. Patent No. 6,925,602 (hereinafter Clapper).

Claim7:

The claim 7 further encompasses the same scope of invention as that of the claim 3 except additional claim limitation of displaying a video display window which enlarges and displays a selected one of the thumbnails. .

Brown and Pan are silent to displaying a video display window which enlarges and displays a selected one of the thumbnails. However, in Figs. 2 and 4 Brown discloses that displaying a plurality of thumbnails and the display window can be adjusted by the user wherein the resolution of the thumbnails change with respect to the window it resides.

Clapper teaches in column 2 the claim limitation of displaying a video display window which enlarges and displays a selected one of the thumbnails. Clapper teaches a graphical user interface allowing the user to edit the video frames represented by the thumbnails and the size of the thumbnails displayed in Fig. 1 of Clapper increases with respect to the number of frames selected or with respect to the window size that the thumbnails are displayed

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to have incorporated a graphical user interface of Clapper into Brown and Pan because it allows the editing of the video frames to change the size of the thumbnails on a display. Brown discloses in Figs. 2 and 4 displaying a plurality of thumbnails and their sizes can be changed with respect to the size of the window and thus at least teaches or suggests the claim limitation of enlarging a selected one of the thumbnails.

One of the ordinary skill in the art would have been motivated to do so to interactively change the size of the thumbnails displayed on a display device (See Clapper Figs. 1-3).

Claim 8:

Brown further discloses the claim limitation of displaying the video display window with at least one of the object region and a background region corresponding to the background is painted with a color (column 6, lines 9-27).

Claim 9:

Brown further discloses the claim limitation of displaying the frames by selectively skipping them (Figs. 2 and 4 wherein the frames not sampled are not displayed).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. U.S. Patent No. 6,665,342 (hereinafter Brown) in view of Pan et al. U.S. Patent No. 6,785,329 (hereinafter Pan) and Clapper et al. U.S. Patent No. 6,925,602 (hereinafter Clapper).

Claim 10:

The claim 10 further encompasses the same scope of invention as that of the claim 3 except additional claim limitation of displaying a mode setting lane which indicates a frame range of the overwrite enable mode and the overwrite disable mode.

Brown and Pan are silent to displaying a mode setting lane which indicates a frame range of the overwrite enable mode and the overwrite disable mode. However, at column 4, lines 60-67 and column 6, lines 63-67 Brown discloses that a user enters the strobe parameters including the starting frame, the end frame, the frame sampling time interval or step size for enabling/disabling the frames wherein sampling of the frames allows the overwrite enable mode and the overwrite disable mode to be set to the frames. Thus, Brown at least suggests the claim limitation of displaying a mode setting lane which indicates a frame range of the overwrite enable mode and the overwrite disable mode.

Clapper teaches the claim limitation of displaying a mode setting lane which indicates a frame range of the overwrite enable mode and the overwrite disable mode to the frames (See Clapper Figs. 1-3).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to have incorporated a graphical user interface allowing the starting frame, the end frame and the frame interval to be set by a user by incorporating the graphical user interface of Clapper into Brown's system and method so that a mode setting lane indicating a frame

range of Brown can be displayed on the graphical user interface to allow the strobe parameters to be entered by the user. Brown also teaches a graphical user interface in Fig. 1 and Brown teaches a user enters the strobe parameters. It is reasonable that Brown teaching of a user's entry of the strobe parameters is through the graphical user interface in Fig. 1 and thus Brown at least teaches or suggests the claim limitation of displaying a mode setting lane which indicates a frame range of the overwrite enable mode and the overwrite disable mode to the frames. Clapper clearly teaches displaying a mode setting lane that indicates a frame range that can be used in Brown to allow the strobe parameters to be entered and the overwrite enable mode and the overwrite disable mode to be set to the frames.

One of the ordinary skill in the art would have been motivated to do so to interactively enter the strobe parameters while the thumbnail images representing the video sequence are viewed simultaneously to control the manipulation of the video sequence (See Clapper Figs. 1-3).

Claim 11:

Brown further discloses the claim limitation of setting the overwrite disable mode to a frame in which a motion vector detection error is small, a motion is small, or a difference in pixel values at both ends of an object contour is large (*At column 6, lines 1-67 and column 7, lines 1-45 Brown teaches the adaptive threshold for each of the frame that is dynamically set so that the proportion of relevant motions found in any iteration does not exceed the specified amount. In addition, Brown teaches the attribute difference vector and the sensitivity thresholds corresponding to the attribute difference vector. Brown teaches updating the statistical parameters of the attribute difference depending on the criteria used to detect a relevant motion*

wherein the parameter includes a specified confidence range. Brown teaches updating the segmentation mask at the corresponding locations if a relevant motion is detected at one or more locations. Brown teaches determining and updating locations from the object to the background and vice versa; see also column 7-8 wherein the threshold T and the confidence limit are the different parameters representing the threshold values for determining the object or the background).

Claim 15:

Brown further discloses the claim limitation of the designation device including a display unit configured to display a video image display lane which displays a plurality of frames of the video image (*Figs. 2 and 4 wherein the video frames are arranged in a lane*) and a mode setting unit which selectively sets the overwrite enable mode and the overwrite disable mode to the frames (*At column 4, lines 60-67 and column 6, lines 63-67 Brown discloses setting the starting frame, the end frame, the frame sampling time interval or step size for enabling/disabling or filtering the frames allowing the detection of relevant motions to be performed on the moving object within the frame and in column 7-8 the segmentation mask and the motion history record is updated as the video sequence is sampled wherein sampling means enabling/sampling the frame for updating the segmentation mask and frames not sampled means that disabling/not sampling the frame for updating the segmentation mask*).

Pan further discloses the claim limitation of the designation device including a display unit configured to display a video image display lane which displays a plurality of frames of the

video image and a mode setting unit which selectively sets the overwrite enable mode and the overwrite disable mode to the frames (*At column 7, lines 52-60, Pan discloses that the frame interval is adapted according to the estimated motion where the motion of moving objects is minimal the interval of two frames is adapted and for a fast motion field, the interval can be set small and for slow motion the interval is set large. The frames selected for motion detection processing has the overwrite enable mode and the frames not selected has the overwrite disable mode*).

Claim 16:

Brown further discloses the claim limitation of displaying a plurality of thumbnails obtained by reducing the frames (See Figs. 2 and 4 wherein a plurality of thumbnails are shown).

Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. U.S. Patent No. 6,665,342 (hereinafter Brown) in view of Pan et al. U.S. Patent No. 6,785,329 (hereinafter Pan) and Clapper et al. U.S. Patent No. 6,925,602 (hereinafter Clapper).

Claim 17:

The claim 17 further encompasses the same scope of invention as that of the claim 16 except additional claim limitation of displaying a video display window which enlarges and displays a selected one of the thumbnails. .

Brown and Pan are silent to displaying a video display window which enlarges and displays a selected one of the thumbnails. However, in Figs. 2 and 4 Brown discloses that displaying a plurality of thumbnails and the display window can be adjusted by the user wherein the resolution of the thumbnails change with respect to the window it resides.

Clapper teaches in column 2 the claim limitation of displaying a video display window which enlarges and displays a selected one of the thumbnails. Clapper teaches a graphical user interface allowing the user to edit the video frames represented by the thumbnails and the size of the thumbnails displayed in Fig. 1 of Clapper increases with respect to the number of frames selected or with respect to the window size that the thumbnails are displayed

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to have incorporated a graphical user interface of Clapper into Brown and Pan because it allows the editing of the video frames to change the size of the thumbnails on a display. Brown discloses in Figs. 2 and 4 displaying a plurality of thumbnails and their sizes can be changed with respect to the size of the window and thus at least teaches or suggests the claim limitation of enlarging a selected one of the thumbnails.

One of the ordinary skill in the art would have been motivated to do so to interactively change the size of the thumbnails displayed on a display device (See Clapper Figs. 1-3).

Claim 18:

Brown further discloses the claim limitation of displaying the video display window with at least one of the object region and a background region corresponding to the background is painted with a color (column 6, lines 9-27).

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. U.S. Patent No. 6,665,342 (hereinafter Brown) in view of Pan et al. U.S. Patent No. 6,785,329 (hereinafter Pan) and Clapper et al. U.S. Patent No. 6,925,602 (hereinafter Clapper).

Claim 19:

The claim 19 further encompasses the same scope of invention as that of the claim 17 except additional claim limitation of displaying a mode setting lane which indicates a frame range of the overwrite enable mode and the overwrite disable mode.

Brown and Pan are silent to displaying a mode setting lane which indicates a frame range of the overwrite enable mode and the overwrite disable mode. However, at column 4, lines 60-67 and column 6, lines 63-67 Brown discloses that a user enters the strobe parameters including the starting frame, the end frame, the frame sampling time interval or step size for enabling/disabling the frames wherein sampling of the frames allows the overwrite enable mode and the overwrite disable mode to be set to the frames. Thus, Brown at least suggests the claim limitation of displaying a mode setting lane which indicates a frame range of the overwrite enable mode and the overwrite disable mode.

Clapper teaches the claim limitation of displaying a mode setting lane which indicates a frame range of the overwrite enable mode and the overwrite disable mode to the frames (See Clapper Figs. 1-3).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to have incorporated a graphical user interface allowing the starting frame, the end frame and the frame interval to be set by a user by incorporating the graphical user interface of Clapper into Brown's system and method so that a mode setting lane indicating a frame

range of Brown can be displayed on the graphical user interface to allow the strobe parameters to be entered by the user. Brown also teaches a graphical user interface in Fig. 1 and Brown teaches a user enters the strobe parameters. It is reasonable that Brown teaching of a user's entry of the strobe parameters is through the graphical user interface in Fig. 1 and thus Brown at least teaches or suggests the claim limitation of displaying a mode setting lane which indicates a frame range of the overwrite enable mode and the overwrite disable mode to the frames. Clapper clearly teaches displaying a mode setting lane that indicates a frame range that can be used in Brown to allow the strobe parameters to be entered and the overwrite enable mode and the overwrite disable mode to be set to the frames.

One of the ordinary skill in the art would have been motivated to do so to interactively enter the strobe parameters while the thumbnail images representing the video sequence are viewed simultaneously to control the manipulation of the video sequence (See Clapper Figs. 1-3).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jcw Jin-Cheng Wang, P.E.